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Incorporating Markov chain modelling and QFD into Kansei engineering applied to services

Markus Hartono*

Department of Industrial and Systems Engineering,
National University of Singapore,
1 Engineering Drive 2, 117576, Singapore
and
Department of Industrial Engineering,
University of Surabaya,
Jalan Raya Kalirungkut, Tenggilis, Surabaya, 60293, Indonesia
Fax: +65-6775-9330
E-mail: markushartono@nus.edu.sg
*Corresponding author

Tan Kay Chuan

Department of Industrial and Systems Engineering,
National University of Singapore,
1 Engineering Drive 2, 117576, Singapore
E-mail: isetankc@nus.edu.sg

Shigekazu Ishihara

Kansei Design Department,
Hiroshima International University,
555-36, Kurose Gakuendai, Higashi Hiroshima City,
Hiroshima Prefecture, 739-2695, Japan
E-mail: i-shige@he.hirokoku-u.ac.jp

John Brian Peacock

Department of Industrial and Systems Engineering,
National University of Singapore,
1 Engineering Drive 2, 117576, Singapore
E-mail: isejbp@nus.edu.sg

Abstract: Instead of usability, customers today concern themselves more on satisfying their emotions/Kansei. This paper discusses an integrative framework that incorporates the Kano model, Markov chain, and quality function deployment (QFD) into Kansei engineering (KE). Its purposes are:

- 1 to exhibit the relationship between service performance and Kansei
- 2 to enable service designers to establish the extent to which they prioritise their improvement programmes in dealing with current and future preferences.

A comprehensive case study involving Indonesian, Japanese, and Singaporean tourists, was carried out. Understanding the cultural differences with respect to Kansei evaluation will yield valuable insights for international marketing strategies.

Keywords: Kano model; Kansei engineering; KE; Markov chain modelling; services; emotion; Kansei; service performance; current preference; future preference; cultural differences; international marketing strategies; quality function deployment; QFD.

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Biographical notes: Markus Hartono is an Assistant Professor in Engineering Management research group at the Department of Industrial Engineering, Faculty of Engineering, University of Surabaya, Indonesia. He received his BEng in Industrial Engineering from University of Surabaya, Indonesia, and MSc from National University of Singapore (NUS), Singapore. Currently, he is a full-time PhD student at the Department of Industrial and Systems Engineering, NUS. In 2011, he received two prestigious awards ('Best Paper Award' and 'Young Service Researcher Award') at The 2nd International Research Symposium on Service Management (IRSSM-2) in Yogyakarta, Indonesia. He is also a certified human factors professional (CHFP) issued by BCPE, and a member of Indonesian Ergonomics Society (PEI).

Tan Kay Chuan received his PhD in Industrial Engineering and Operations Research (concentration in human factors engineering) from the Virginia Polytechnic Institute and State University, USA, in 1990. He has been with the Department of Industrial and Systems Engineering, NUS, since then. He is currently associate professor and certified human factors professional (CHFP) issued by Board of Certification in Professional Ergonomics (BCPE). His teaching expertise is in human factors engineering, engineering statistics, engineering economy, quality planning and management, and more recently service innovation and management, and Six Sigma. His research interests are in quality function deployment, quality award systems, and innovation in service design.

Shigekazu Ishihara is a Professor at the Department of Kansei Design, Hiroshima International University, Hiroshima, Japan. He received his Bachelor and Postgraduate degrees from the Department of Psychology at Nihon University. In addition, he received his PhD from Hiroshima University, Japan. Since joining Professor Mitsuo Nagamachi, he has been researching the theoretical side of Kansei engineering such as psychological measurements, and researching and creating (new) multivariate analysis methods. He is a certified professional ergonomist (CPE-J) and an expert of product development and improvement with ergonomics, general ergonomics, Kansei Engineering, and gerontechnology.

John Brian Peacock is an Adjunct Professor at the Department of Industrial and Systems Engineering, NUS. He received his PhD in Engineering Production from Birmingham University, UK. He is a registered professional engineer (PE), a certified professional ergonomist (CPE), and a Fellow of the Ergonomics Society (USA). His career has included 18 years in academia, 15 years with General Motors' vehicle design and manufacturing organisations and four years as discipline coordinating scientist for the National Space

Biomedical Institute/NASA. His teaching and research interests cover human factors/ergonomics, biomechanics, simulation, statistics, system safety, and socio-technical system design.

1 Introduction

Competitive price and performance features have become prominent factors in deciding which products to buy (Schifferstein and Hekkert, 2008). Each product or service therefore needs to offer features or properties that distinguish it and attract customers. Nowadays, the focus of customers refers to the switch between functionalism and product semantics. Quick model changes, technical updates, and price reduction are no longer sufficient (Shaw and Ivens, 2002). An impression evoked by a product experience is deemed to bring customer satisfaction (Khalid and Helander, 2006; Schifferstein and Hekkert, 2008). Norman (2004) argues that products or systems that are able to make customers happy are easier to deal with.

In dealing with customer emotions, KE has been extensively applied (Nagamachi, 1995, 2002a, 2002b). Its applications cover product design and service quality improvement (Nagamachi and Lokman, 2011). Recent research (see Hartono and Tan, 2011) has extended the application of Kansei engineering (KE) into international-class services and cross-cultural studies. Although the focus of many studies on service quality has been mainly on cognition (Liljander and Strandvik, 1997; Wong, 2004; Ladhari, 2009), this study was carried out to highlight the role of KE in services by incorporating proper service and quality tools.

This study has two objectives. The first it is to develop an integrative framework of KE applied to services. The second is to conduct a case study on luxury hotel services involving participants from different cultural backgrounds. This paper is organised as follows. Following the introduction, a brief review of KE, the Kano model, Markov chain, and quality function deployment (QFD), is presented. Thereafter, the main contribution of this research – an integrative framework followed by a case study – is provided. A discussion and conclusion section wraps up the paper.

2 Brief literature review

2.1 *Kansei and KE*

According to Nagamachi (1995), Kansei is defined as the customer's psychological feeling and image of a new product. All human senses as well as cognition are simultaneously involved (Schütte et al., 2008). KE has been in use since the 1970s. Basically, the KE methodology is useful in several regards:

- KE is able to translate customer emotions into concrete design parameters through engineering aspects (Nagamachi, 2002a, 2002b)
- KE tries to minimise subjectivity by building a mathematical model between emotional responses through all the human senses and their respective external stimuli